

EPA Superfund Explanation of Significant Differences:

FORT HARTFORD COAL CO. STONE QUARRY

EPA ID: KYD980844625

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OLATON, KY

06/28/1999



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

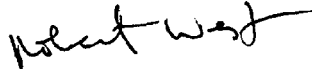
July 8, 1999

4WD-NSMB

MEMORANDUM

SUBJECT: Explanation of Significant Difference
Fort Hartford Stone Quarry Site
Hartford, Kentucky

FROM:

Robert West, MPA 
Remedial Project Manager
North Site Management Branch

TO:

Debbie Jourdan
Administrative Records Coordinator

On July 9, 1999, pursuant to Section 300.45(c) (2) of the National Contingency Plan (NCP) and the Guidance on Preparing Superfund Decision Documents (Directive #9355.3-02), the Waste Management Division Director, United States Environmental Protection Agency (U.S. EPA), Region 4, issued an Explanation of Significant Difference (ESD) to the remedy selected in the Record of Decision dated March 30, 1995 for the Fort Hartford Stone Quarry Site in Hartford, Kentucky. Section 300.825 (a) (2) of the NCP requires that the ESD and all documents forming the basis for the ESD be placed in the administrative record for the site.

Accordingly, please place the attached documents in the administrative record located U.S. EPA Records Center, 61 Forsyth St, Atlanta, Georgia 30303 and the County Record Clerk's Office, Ohio County Courthouse Main St, Hartford, Kentucky 42347.

Attachments



EXPLANATION OF SIGNIFICANT DIFFERENCES

FORT HARTFORD STONE QUARRY SITE OLATON, KENTUCKY

REGION 4

June 1999

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) is issuing this Explanation of Significant Differences (ESD) for the Fort Hartford Stone Quarry Site ("the Site") in Olaton, Ohio County, Kentucky. The purpose of this ESD is to provide additional information on the selected remedy for the Fort Hartford Stone Quarry Site as originally described in the Record of Decision (ROD) issued by EPA on March 30, 1995. This ESD also modifies the performance standards established in the ROD, and provides information on the remedial action completed at the Site.

This ESD is part of EPA's public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Section 300.435 (c)(2)(1). An ESD is published when the differences in a remedial or enforcement action, settlement, or consent decree significantly change but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost. This notice includes information on activities that were not specified in the ROD, and/or were modified from the ROD. The Administrative Record (AR) contains the information upon which the ROD was based. This ESD and supporting documentation will become a part of that AR which is located in the following places:

County Record Clerk's Office
Ohio County Courthouse
Main Street
Hartford, Kentucky 42347
Tel. (502)298-4422

Superfund Records Center
U.S. EPA, Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303
Tel. (404)562-8946

SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

Site History and Contamination Problems

The Fort Hartford Stone Quarry Site is located approximately 1.25 miles northwest of Olaton, Kentucky, in east central Ohio County. It is bounded to the north by the Rough River and Davison Station Wildlife Management Area, to the south by Davison Station Road (now Underwood Road), to the east by one residence and Caney Creek, and to the west by agricultural land and Cane Run Creek.

The property encompasses approximately 850 acres with an underground mine portion consisting of approximately 120 acres. The mine consists of two lobes or subdivisions. The first lobe, the Rough River lobe, has three primary entrances that were used during a mining operations. The second lobe, the Caney Creek lobe, has five entrances.

From the late 1950s until about 1978, limestone was excavated from the mine. Beginning in 1981, by-products of secondary aluminum recovery, called salt cake fines (SCFs), were placed in the mine by the potentially responsible party (PRP) Barmet Aluminum Corporation (now Commonwealth Aluminum Concast, Inc.). In 1988, U.S. EPA proposed that the Site be added to the National Priorities List (NPL). On September 20, 1989, an agreement called an Administrative Order on Consent (AOC) was signed between the PRP and EPA. The agreement required the PRP to perform expedited response actions (ERAs) and a Remedial Investigation/Feasibility Study (RI/FS) study for the site. Activities taken as part of the ERA included grading the site for drainage away from SCF areas, relocating SCFs from known wet areas, repairing mine roof collapses, permanently closing 26 sinkholes, and obtaining a Kentucky Pollutant Discharge Elimination System (KPDES) permit for controlled discharge of site drainage into the Rough River.

After the ERAs were completed, the RI/FS at the Fort Hartford Site was conducted. Field activities began in December 1991 and concluded in September 1993. The major areas of concern at the Site were ammonia emissions in the air, and ammonia, chlorides, sulfates, and metals in ground water (and hence in some springs and surface water). No evidence of Site-related impacts were found in the residential wells sampled.

Selected Remedy

On March 30, 1995, EPA issued a Record of Decision (ROD) for the Site which selected a remedy involving source control, mine water diversion, and air containment for the Site. The selected remedy included:

- S** Institutional controls (fencing, etc.) to prevent exposure to ground water and airborne ammonia;
- S** Source control measure consisting of SCFs relocation and continued diversion

of intruding mine water/ground water away from salt cake fines (SCFs) via pumping with subsequent treatment for ammonia content and discharge to the Rough River;

- S** Deed Restrictions;
- S** A ground water, spring and surface water monitoring program to determine the effectiveness of source control measures;
- S** Containment of night air emissions via portal doors;
- S** An air monitoring program to determine effectiveness of night containment of ammonia emissions; and
- S** Forced ventilation of mine air to two dispersion stacks should monitoring reveal night containment of air emissions ineffective.

Remedial Action Activities

Remedial construction activities were conducted from June 1996 through July 1998. Relocation of SCFs was conducted in four areas within the mine to prevent SCFs from reacting with water in the mine, thereby mitigating the continued release of pollutants to the air and aquifers beneath the site; and, reducing the concentrations of pollutants in the air, surface water, and groundwater to meet the performance standards. Along with the SCFs' relocation, an automated pumping system was installed to further reduce the time water stays inside the mine. The automated pumping system transfers infiltrating water from the Caney Creek and Rough River lobes of the mine to the Rough River Basin. The water is then treated to remove ammonia content. An acid storage tank and feed pump are in-line should the addition of acid be necessary prior to final discharge. The capacity of the Rough River Basin and Caney Creek Basin was increased to allow for containment after treatment when discharge is prohibited due to low stream flow conditions. Fence enclosures were installed at all above-ground power locations for the underground pumping systems.

Two rounds of geotechnical surveillance have been performed in the mine since RA construction activities began to monitor mine roof deterioration.

DESCRIPTION OF SIGNIFICANT DIFFERENCES AND BASES FOR THE DIFFERENCES

Ambient Air

During the Remedial Design (RD) phase, ambient air monitoring was conducted along the property boundary of the Ft. Hartford Stone Quarry Site to determine whether or not ammonia emissions leaving the property exceeded the Kentucky standard for ammonia in ambient air (Threshold Ambient Limit [TAL] of 0.428 micrograms per cubic meter [mg/m^3]). If monitoring indicated levels above the TAL at the fenceline, then the portal doors would be installed. Furthermore, if post-closure monitoring still indicated levels above the TAL at the fenceline, then the contingent air remedy (dispersion stack) design would be implemented.

Monitoring was conducted from September 6 through September 9, 1997. The results of the monitoring demonstrated that the ammonia concentration at the fenceline was below the eight-hour TAL of $0.428 \text{ mg}/\text{m}^3$. The maximum 8-hour concentration observed during the monitoring period was $0.31 \text{ mg}/\text{m}^3$. Therefore, no remedial action for ammonia emissions (i.e. portal doors and contingent dispersion stacks) from the mine was required.

Performance Standards

The ROD does not specify performance standards for ground water nor surface water. It only identifies different monitoring locations and parameters to evaluate the effectiveness of the remedy in meeting health-based levels. The monitoring locations and parameters for ground water and surface water are the following:

Parameters: Full TCL/TAL list

Locations:

- SCF-impacted ground water monitoring wells used in the RI with supplementary sampling at other RI wells
- S SCF-impacted seeps used in the RI plus supplementary sampling at other points
- S SCF-impacted surface water points used in the RI plus supplementary sampling at other RI points
- S selected residential wells monitored in the RI

The health-based levels identified in the ROD are as follows:

Ammonia: 34 mg/l (health advisory level)
Chlorides: 250 mg/l (secondary Maximum Contaminant Levels, MCL)
Aluminum: 0.05-0.2 mg/l (Secondary MCL)

The principal contaminants of concern identified in the ROD included ammonia, chlorides, sulfates, and numerous metals in ground water and surface water. However, a re-evaluation of the performance standards was necessary because many of the contaminants of concern are naturally-occurring. Also, it is important to note that neither ground water nor spring water is currently used for drinking water purposes onsite or in the near vicinity of the Site.

The PRP collected additional ground water and surface water data during the Remedial Design (RD) phase to re-evaluate the performance standards taking into consideration background concentrations, risk-based concentrations, Applicable or Relevant and Appropriate Requirements (ARARs), and EPA Removal Action Levels (RAL).

The results of the ground water sampling indicated that SCF indicator parameters (sodium, ammonia and chlorides) remained above Secondary Maximum Contaminant Levels (SMCL) and/or Secondary Health Advisories in limited areas of

each of the monitored formations. Barium, iron and manganese in excess of Maximum Contaminant Levels (MCLs) and/or risk-based concentrations (RBCs) were identified exclusively in the Big Clifty sandstone unit only.

Based on the findings of the RD sampling, the performance standards for ground water have been modified as follows:

Ground Water Monitoring Well Location and Parameters	Performance Standard, ug/l
<u>Hanev/Upper Big Clifty:</u> Sodium Chloride Ammonia Sulfate	120,275 (Background) 250 (SMCL) 34 (BEAST) 500 (Proposed MCL)
<u>Upper Big Clifty:</u> Barium Iron Manganese Sodium Chloride Ammonia	2,000 (MCL) 1,100 (RBC) 840 (RBC) 184,510 (Background) 250 (SMCL) 34 (BEAST)
<u>Lower Big Clifty:</u> Iron Sodium Chloride	1,100 (RBC) 275,000 (Background) 250 (SMCL)
<u>Beech Creek/Elwren:</u> Sodium Chloride	535,000 (Background) 250 (SMCL)
<u>Reelsville:</u> Sodium Chloride	488,750 (Background) 250 (SMCL)

Background - Mean Background Concentration
HEAST-Health Effects Assessment Summary Tables

The ROD identified two springs as being impacted by SCFs. Surface water samples collected during the RD indicated that the concentrations of SCF indicator parameters in these springs have dropped indicating that relocation and pumping measures have favorably altered the quality of surface water. As previously mentioned, no specific performance standards were identified in the ROD for surface water other than the monitoring locations and parameters mentioned earlier in this ESD. However, after evaluating the discharge points of these two springs, the KPDES Branch concluded that the discharge of these springs should be addressed in the current discharge permit using Best Management Practices, instead of requiring instream sampling to demonstrate compliance with the Water Quality Standards. Therefore, no other performance standards are needed for surface water other than those associated with the KPDES permit.

PUBLIC PARTICIPATION

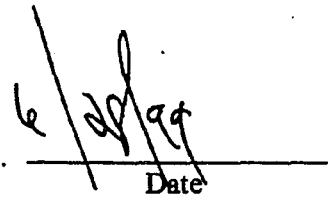
This fact sheet along with notice in a major local newspaper provides public notice of the ESD, including the reasons for such differences. Supporting information is included in the Administrative Record and is available for public review. EPA has set up a 30-day public comment period to request comments regarding the changes to the selected remedy identified in this ESD. Notification of this comment period will appear in a major local newspaper. Comments or questions on this ESD should be mailed to Robert West, Remedial Project Manager, at the address shown on the following page.

For further information concerning the Fort Hartford Stone Quarry Site, contact Robert West, or Cindy Gibson, Community Involvement Coordinator, at 1-800-435-9233 or at the following address:

U.S. Environmental Protection Agency
Region 4, Sam Nunn AFC
North Site Management Branch
61 Forsyth St., S.W.
Atlanta, GA 30303



Richard D. Green, Director
Waste Management Division



Date